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CLAIMS

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1. Elevator (2) comprising a car (4), a counterweight (6), a hoisting rope (8) for suspending the car (4) and the counterweight (6), a drive motor (10), a motor drive unit (26) for supplying the power to the drive motor (10), and a brake (18) for stopping the movement of the car (4) in an emergency situation, the elevator (2) further comprising an elevator rescue system (40), comprising an emergency power supply (42), an emergency brake switch (44) which is arranged in a line (60) connecting the emergency power supply (42) to the brake (18) for connecting and disconnecting the DC power of the emergency power supply (42) to the brake (18), and an emergency drive switch (46) for connecting and disconnecting the power of the emergency power supply (42) to the drive motor (10),
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- characterised in that
- the elevator rescue system (40) further comprises the motor drive unit (26) and a power line (74) connecting the emergency power supply (42) with the
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- motor drive unit (26) and including the emergency drive switch (46).
2. Elevator (2) according to claim 1, wherein the emergency power supply (42) provides at least two different output voltages, wherein the brake (18) is connected via the emergency brake switch (44) to the lower voltage output (54) and wherein the higher voltage output (56) is connected to the motor drive
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- unit (26).
3. Elevator (2) according to claim 2, wherein the emergency power supply (42) comprises a storage battery (48) and a voltage booster (50) for increasing the
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- output voltage of the battery (48).
4. Elevator (2) according to any of claims 1 to 3, wherein the brake (18) and the motor drive unit (26) are coupled with each other in a way which allows energizing of the drive motor (10) only if the brake (18) is energized.
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CLAIMS

1. Elevator (2) comprising a car (4), a counterweight (6), a hoisting rope (8) for suspending the car (4) and the counterweight (6), a drive motor (10), a motor drive unit (26) for supplying the power to the drive motor (10), and a brake (18) for stopping the movement of the car (4) in an emergency situation, the elevator (2) further comprising an elevator rescue system (40), comprising an emergency power supply (42), an emergency brake switch (44) for connecting and disconnecting the power of the emergency power supply (42) to the brake (18), and an emergency drive switch (46) for connecting and disconnecting the power of the emergency power supply (42) to the drive motor (10), *and to the brake (18),*

~~characterised in that~~

wherein the elevator rescue system (40) further comprises the motor drive unit (26) and a power line (74) connecting the emergency power supply (42) with the motor drive unit (26) and including the emergency drive switch (46), *and*
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2. Elevator (2) according to claim 1, wherein the emergency power supply (42) provides at least two different output voltages, wherein the brake (18) is connected via the emergency brake switch (44) to the lower voltage output (54) and wherein the higher voltage output (56) is connected to the motor drive unit (26).

3. Elevator (2) according to claim 2, wherein the emergency power supply (42) comprises a storage battery (48) and a voltage booster (50) for increasing the output voltage of the battery (48).

~~4. Elevator (2) according to any of claims 1 to 3~~ wherein the brake (18) and the motor drive unit (26) are coupled with each other in a way which allows energizing of the drive motor (10) only if the brake (18) is energized. >

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⁵ Elevator (2) according to any of claims 1 to ³~~4~~, wherein the brake ¹⁸(~~26~~) and the motor drive unit ²⁶(~~18~~) are coupled with each other in a way which allows energizing of the brake ¹⁸(~~26~~) only if the motor drive unit ²⁶(~~18~~) is energized.

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⁶ Elevator (2) according to any of claims 1 to ⁴~~5~~, further comprising a main power switch (86) for disconnecting main power supply to the elevator (2), wherein the emergency brake and/or the emergency drive switches (44; 46) are coupled with the main power switch (86) in a way which allows ener-
 405 gising of the brake (18) and/or the drive motor (10), respectively, only if the main power supply is disconnected.

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⁷ Elevator (2) according to any of claims 1 to ⁵~~6~~, further comprising a safety chain which is connected with a safety chain input (80) of the motor drive unit (26), wherein the emergency power supply (42) comprises a safety chain voltage output (58) which provides a safety chain voltage to the safety chain input (80) of the motor drive unit (26) via the emergency drive switch (46).
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⁸ Elevator (2) according to any of claims 1 to ⁶~~7~~, wherein the motor drive unit (26) further includes a control input (84) which is connected via the emer-
 415 gency drive switch (46) to a voltage output (54) of the emergency power supply (42), wherein the motor drive unit (26) is designed to provide to the drive motor (16) a power supply according an emergency rescue mode if a
 420 pre-determined voltage is applied to its control input (84).

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⁹ Elevator (2) according to any of claims 1 to ⁷~~8~~, further comprising a door zone indicating device (64), wherein the door zone indicating device (64) is connected to the elevator rescue system (40) for stopping the car (4) at a
 425 landing (72) once the door zone indicating device (64) has signalled that the car (4) is positioned at a landing (72).

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10. Elevator (2) according to any of claims 1 to 8, further comprising a speed control unit (24) for controlling the speed of the car (4), which is connected to the brake (18).

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1/1. Method for performing an elevator rescue operation if a safety brake (18) of the elevator (2) has stopped the movement of an elevator car (4) due to an emergency situation, wherein the elevator (2) comprises the car (4), a counterweight (6), a hoisting rope (3) for suspending the car (4) and the counterweight (6), a drive motor (10), a motor drive unit (26) for supplying the power to the drive motor (10), and the brake (18) for stopping the movement of the car (4) in an emergency situation, the elevator (2) further comprising an elevator rescue system (49) having an emergency power supply (42), the method comprising the following steps:

- (a) switching an emergency brake switch (44) thereby connecting the power of the emergency power supply (42) to the brake (18) and lifting the brake (18),
- (b) monitoring the speed of the car (4),
- (c) sensing whether the car (4) reaches a landing (72), and
- (d) switching the emergency brake switch (44) to disconnect the power to the brake (18), if the car (4) is not moving within a fixed period of time, and
- (e) if the car (4) does not reach a landing (42) during steps (a) to (d), switching an emergency drive switch (46) thereby connecting the power of the emergency power supply (42) to the motor drive unit (26),
- (f) supplying power from the motor drive unit (26) to the brake (18) and lifting the brake (18),
- (g) supplying power from the motor drive unit (26) to the motor (10) and moving the car (4),
- (h) sensing whether the car (4) has reached a landing (72), and
- (i) stopping the car (4) when it has reached a landing (72).

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1/2. Method for performing an elevator rescue operation if a safety brake (13) of the elevator (2) has stopped the movement of an elevator car (4) due to an emergency situation, wherein the elevator (2) comprises the car (4), a counterweight (6), a hoisting rope (8) for suspending the car (4) and the counterweight (6), a drive motor (10), a motor drive unit

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(26) for supplying the power to the drive motor (10), and the brake (18) for stopping the movement of the car (4) in an emergency situation, the elevator (2) further comprising an elevator rescue system (49) having an emergency power supply (42), the method comprising the following steps:

(A) switching an emergency drive switch (46) thereby connecting the power of the emergency power supply (42) to the motor drive unit (26).

(B) determining by means of the motor drive unit (26) based on stored data whether the car (4) and the counterweight (6) are in a balanced load situation or not,

(C) if car (4) and counterweight (6) are not in a balanced load situation,

(C1) supplying power from the motor drive unit (26) to the brake (18), lifting the brake (18) and allowing the car (4) to move due to gravity,

(C2) monitoring and controlling the speed of the car (4), or

(D) if car (4) and counterweight (6) are in a balanced load situation,

(D1) supplying power from the motor drive unit (26) to the motor (10) and moving the car (4), and

(E) sensing whether the car (4) has reached a landing (72), and

(F) stopping the car (4) when it has reached a landing (72).

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~~13~~. Method according to claim 11 or 12, wherein the brake (18) and the motor drive unit (26) are coupled with each other in a way which allows energizing of the drive motor (10) only if the brake (18) is energized.

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~~14~~. Method according to any of claims 11 to 13, further comprising the step of disconnecting the main power supply to the elevator (2) before switching the emergency brake switch (44) and/or the emergency power switch (46) to connecting power to the brake (18) and the motor drive unit (26), respectively.

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